Propagation of Short Lightpulses in Microring Resonators

A. Driessen, K. Wörhoff, R. Dekker, D.H. Geuzebroek, E.J. Klein
Integrated Optical Micro Systems, MESA+ Research Institute, University of Twente, Netherlands
P.O. Box 217, 7500 AE Enschede, The Netherlands

ABSTRACT
The propagation of short lightpulses in waveguiding structures with optical feedback, in our case optical microresonators, has been studied theoretically and experimentally. It appears that, dependent on the measurement set-up, ballistic transport or interference in the time domain of fs and ps laser pulses can be observed. The experiments are analyzed in terms of characteristic time scales of the source, the waveguide device and the detector arrangement and are related to Heisenberg's uncertainty principle.